

RAW SEQUENCE LISTING

**The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.**

Application Serial Number: 09/762, 577 B
Source: IFW16
Date Processed by STIC: 03/03/2006

ENTERED



IFW16

RAW SEQUENCE LISTING

DATE: 03/03/2006

PATENT APPLICATION: US/09/762,577B

TIME: 10:45:23

Input Set : A:\2486-109REPLACEMENTSEQLISTCOPY1.TXT

Output Set: N:\CRF4\03032006\I762577B.raw

4 <110> APPLICANT: Dranoff, Glenn
 5 Schmollinger, Jan
 6 Hodi, F. Stephen
 7 Mollick, Joseph
 10 <120> TITLE OF INVENTION: TUMOR ANTIGENS AND USES THEREOF
 13 <130> FILE REFERENCE: 2486/109
 15 <140> CURRENT APPLICATION NUMBER: US 09/762,577B
 16 <141> CURRENT FILING DATE: 2002-08-29
 18 <150> PRIOR APPLICATION NUMBER: 60/095,766
 19 <151> PRIOR FILING DATE: 1998-08-07
 21 <160> NUMBER OF SEQ ID NOS: 68
 23 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 25 <210> SEQ ID NO: 1
 26 <211> LENGTH: 1433
 27 <212> TYPE: DNA
 28 <213> ORGANISM: homo sapiens
 30 <400> SEQUENCE: 1
 31 ttcggttttcg cttccgcctc cagcgcgagc cccgccgcgc cgcagcatgg acgaccccca 60
 32 ctgcgactcc acctgggagg aggacgagga ggatgcggag gacgcggagg acgaggactg 120
 33 cgaggacggc gaggccgcgc gcgcgagga cgcggacgca ggggacgagg acgaggagtc 180
 34 ggaggagccg cgggcgggcgc ggcccagctc gttccagtcc agaatgacag ggtccagaaa 240
 35 ctggcgagcc acgagggaca tgtgtaggta tcggcacaaac tatccggatc tgggtggaacg 300
 36 agactgcaat ggggacacgc caaacctgag tttctacaga aatgagatcc gcttcctgcc 360
 37 caacggctgt ttcataggag acattcttca gaactggacg gacaactatg acctccttga 420
 38 ggacaatcac tcctacatcc agtggctgtt tcctctgcga gaaccaggag tgaactggca 480
 39 tgccaagccc ctcacgctca gggaggctga ggtgtttaaa agctcccagg agatccagga 540
 40 gcggcttgct cgggcctacg agctcatgct gggctttctac gggatccggc tggaggaccg 600
 41 aggcacgggc acggtgggac gagcacagaa ctaccagaag cgcttccaga acctgaactg 660
 42 gcgcagccac aacaacctcc gcatcacacg catcctcaag tcgctgggtg agctgggcct 720
 43 cgagcacttc caggcgcgcg tggctcgctt cttcctggag gagacgctgg tgcggcggga 780
 44 gctgccgggg gtgcggcaga gtgccctgga ctacttcatg ttcgccgtgc gctgccgaca 840
 45 ccagcgcgcg cagctgggtg acttcgcctg ggagcacttc cggccccgct gcaagttcgt 900
 46 ctggggggccc caagacaagc tgcggagggt caagcccagc tctctgcccc atccgctcga 960
 47 gggctccagg aaggtggagg aggaaggaag ccccggggac ccgaccacg aggccagcac 1020
 48 ccagggtcgg acctgtgggc cagagcatag caagggtggg ggcagggtgg acgagggggc 1080
 49 ccagccacgg agcgtggagc ccaggatgc gggaccctg gagaggagcc agggggatga 1140
 50 ggcagggggc cacggggaag ataggccgga gcccttaagc cccaaagaga gcaagaagag 1200
 51 gaagctggag ctgagccggc gggagcagcc gccacagag ccaggccctc agagtgcctc 1260
 52 agaggtggag aagatgcctc tgaatttgga ggggtgtgcc ctacgccagg gcagcctcag 1320
 53 gacgggggac caggaagtgg gcggtcagga cctgggggag gcagtgaac cctgccggca 1380
 54 acccctggga gccagggtgg ccgacaaggt gaggaaaccg gaggaaggtg gat 1433
 56 <210> SEQ ID NO: 2
 57 <211> LENGTH: 477

Cp9-6)

RAW SEQUENCE LISTING

DATE: 03/03/2006

PATENT APPLICATION: US/09/762,577B

TIME: 10:45:23

Input Set : A:\2486-109REPLACEMENTSEQLISTCOPY1.TXT

Output Set: N:\CRF4\03032006\I762577B.raw

58 <212> TYPE: PRT

59 <213> ORGANISM: homo sapiens

61 <400> SEQUENCE: 2

```

62 Ser Val Ser Leu Pro Pro Pro Ala Arg Ala Pro Pro Pro Pro Ser Met
63 1 5 10 15
64 Asp Asp Pro Asp Cys Asp Ser Thr Trp Glu Glu Asp Glu Glu Asp Ala
65 20 25 30
66 Glu Asp Ala Glu Asp Glu Asp Cys Glu Asp Gly Glu Ala Ala Gly Ala
67 35 40 45
68 Arg Asp Ala Asp Ala Gly Asp Glu Asp Glu Glu Ser Glu Glu Pro Arg
69 50 55 60
70 Ala Ala Arg Pro Ser Ser Phe Gln Ser Arg Met Thr Gly Ser Arg Asn
71 65 70 75 80
72 Trp Arg Ala Thr Arg Asp Met Cys Arg Tyr Arg His Asn Tyr Pro Asp
73 85 90 95
74 Leu Val Glu Arg Asp Cys Asn Gly Asp Thr Pro Asn Leu Ser Phe Tyr
75 100 105 110
76 Arg Asn Glu Ile Arg Phe Leu Pro Asn Gly Cys Phe Ile Glu Asp Ile
77 115 120 125
78 Leu Gln Asn Trp Thr Asp Asn Tyr Asp Leu Leu Glu Asp Asn His Ser
79 130 135 140
80 Tyr Ile Gln Trp Leu Phe Pro Leu Arg Glu Pro Gly Val Asn Trp His
81 145 150 155 160
82 Ala Lys Pro Leu Thr Leu Arg Glu Val Glu Val Phe Lys Ser Ser Gln
83 165 170 175
84 Glu Ile Gln Glu Arg Leu Val Arg Ala Tyr Glu Leu Met Leu Gly Phe
85 180 185 190
86 Tyr Gly Ile Arg Leu Glu Asp Arg Gly Thr Gly Thr Val Gly Arg Ala
87 195 200 205
88 Gln Asn Tyr Gln Lys Arg Phe Gln Asn Leu Asn Trp Arg Ser His Asn
89 210 215 220
90 Asn Leu Arg Ile Thr Arg Ile Leu Lys Ser Leu Gly Glu Leu Gly Leu
91 225 230 235 240
92 Glu His Phe Gln Ala Pro Leu Val Arg Phe Phe Leu Glu Glu Thr Leu
93 245 250 255
94 Val Arg Arg Glu Leu Pro Gly Val Arg Gln Ser Ala Leu Asp Tyr Phe
95 260 265 270
96 Met Phe Ala Val Arg Cys Arg His Gln Arg Arg Gln Leu Val His Phe
97 275 280 285
98 Ala Trp Glu His Phe Arg Pro Arg Cys Lys Phe Val Trp Gly Pro Gln
99 290 295 300
100 Asp Lys Leu Arg Arg Phe Lys Pro Ser Ser Leu Pro His Pro Leu Glu
101 305 310 315 320
102 Gly Ser Arg Lys Val Glu Glu Glu Gly Ser Pro Gly Asp Pro Asp His
103 325 330 335
104 Glu Ala Ser Thr Gln Gly Arg Thr Cys Gly Pro Glu His Ser Lys Gly
105 340 345 350
106 Gly Gly Arg Val Asp Glu Gly Pro Gln Pro Arg Ser Val Glu Pro Gln
107 355 360 365

```

RAW SEQUENCE LISTING

DATE: 03/03/2006

PATENT APPLICATION: US/09/762,577B

TIME: 10:45:23

Input Set : A:\2486-109REPLACEMENTSEQLISTCOPY1.TXT

Output Set: N:\CRF4\03032006\I762577B.raw

```

108 Asp Ala Gly Pro Leu Glu Arg Ser Gln Gly Asp Glu Ala Gly Gly His
109      370                      375                      380
110 Gly Glu Asp Arg Pro Glu Pro Leu Ser Pro Lys Glu Ser Lys Lys Arg
111 385                      390                      395                      400
112 Lys Leu Glu Leu Ser Arg Arg Glu Gln Pro Pro Thr Glu Pro Gly Pro
113                      405                      410                      415
114 Gln Ser Ala Ser Glu Val Glu Lys Ile Ala Leu Asn Leu Glu Gly Cys
115                      420                      425                      430
116 Ala Leu Ser Gln Gly Ser Leu Arg Thr Gly Thr Gln Glu Val Gly Gly
117                      435                      440                      445
118 Gln Asp Pro Gly Glu Ala Val Gln Pro Cys Arg Gln Pro Leu Gly Ala
119                      450                      455                      460
120 Arg Val Ala Asp Lys Val Arg Lys Pro Glu Glu Gly Gly
121 465                      470                      475
124 <210> SEQ ID NO: 3
125 <211> LENGTH: 978
126 <212> TYPE: DNA
127 <213> ORGANISM: homo sapiens
129 <400> SEQUENCE: 3
130 cgcggtggct agtgggtgggtg ccagacacatt ggcccttgcc ggggtccctg ccccatcggg 60
131 gcacccaag gctggacaca gtgagaacgg ggttgaggag gacacagaag gtcgaacggg 120
132 gcccagaag ggtacccctg ggagcccatc ggagacccca ggccccagcc cagcaggacc 180
133 tgcaggggac gagccagccg agagcccatc ggagacccca ggcccccgcc cagcaggacc 240
134 tgcaggggac gagccggccg agagcccatc ggagacccca ggcccccgcc cagcaggacc 300
135 tgcaggggac gagccagcca agaccccatc ggagacccca ggccccagcc cggcaggacc 360
136 tacaagggat gagccagccg agagcccatc ggagacccca ggcccccgcc cggcaggacc 420
137 tgcaggggac gagccagccg agagcccatc ggagacccca ggcccccgcc cggcaggacc 480
138 tgcaggggac gagccagccg agagcccatc ggagacccca ggccccagcc cggcaggacc 540
139 tacaagggat gagccagcca aggcggggga ggcagcagag ttgcaggacg cagaggtgga 600
140 gtcttctgcc aagcttgga agccttaagg aaaggagtgc ccgtcggcgt cttggtcctc 660
141 ctgtccctgc tgcaggggct ggggcctcgc gagctgctgc gggctccctc caggctctgc 720
142 ttcgtgaccc gtgacccatg acccacagtg ctggcctcct gtggggccac tatagcagcc 780
143 accagaagcc gcgaggccct cagggaagcc caaggcctgc agaagcctcc tggcctggct 840
144 gtgtcttccc caccagctc tccctgcgc ccctgtcttt gtaaattgac ccttctggag 900
145 tggggggcgg cgggcagggc tgcttttctt agtctgatgc caagcaaggc cttttctgaa 960
146 taaattcatt tgactttg 978
148 <210> SEQ ID NO: 4
149 <211> LENGTH: 243
150 <212> TYPE: PRT
151 <213> ORGANISM: homo sapiens
153 <400> SEQUENCE: 4
154 Arg Trp Leu Val Val Val Pro Arg Pro Trp Pro Leu Pro Gly Pro Leu
155 1 5 10 15
156 Pro His Arg Gly Thr Pro Arg Leu Asp Thr Val Arg Thr Gly Leu Arg
157 20 25 30
158 Arg Thr Gln Lys Val Glu Arg Gly Pro Lys Lys Val Pro Leu Gly Ala
159 35 40 45
160 His Arg Arg Pro Gln Ala Pro Ala Gln Gln Asp Leu Gln Gly Thr Ser
161 50 55 60

```

RAW SEQUENCE LISTING

DATE: 03/03/2006

PATENT APPLICATION: US/09/762,577B

TIME: 10:45:23

Input Set : A:\2486-109REPLACEMENTSEQLISTCOPY1.TXT

Output Set: N:\CRF4\03032006\I762577B.raw

```

162 Gln Pro Arg Ala His Arg Arg Pro Gln Ala Pro Ala Gln Gln Asp Leu
163 65 70 75 80
164 Gln Gly Thr Ser Arg Pro Arg Ala His Arg Arg Pro Gln Ala Pro Ala
165 85 90 95
166 Gln Gln Asp Leu Gln Gly Thr Ser Gln Pro Arg Pro His Arg Arg Pro
167 100 105 110
168 Gln Ala Pro Ala Arg Gln Asp Leu Gln Gly Met Ser Gln Pro Arg Ala
169 115 120 125
170 His Arg Arg Pro Gln Ala Pro Ala Arg Gln Asp Leu Gln Gly Thr Ser
171 130 135 140
172 Gln Pro Arg Ala His Arg Arg Pro Gln Ala Pro Ala Arg Gln Asp Leu
173 145 150 155 160
174 Gln Gly Thr Ser Gln Pro Arg Ala His Arg Arg Pro Gln Ala Pro Ala
175 165 170 175
176 Arg Gln Asp Leu Gln Gly Met Ser Gln Pro Arg Arg Gly Arg Gln Gln
177 180 185 190
178 Ser Cys Arg Thr Gln Arg Trp Ser Leu Leu Pro Ser Leu Gly Ser Leu
179 195 200 205
180 Lys Glu Arg Ser Ala Arg Arg Arg Leu Gly Pro Pro Val Pro Ala Ala
181 210 215 220
182 Gly Ala Gly Ala Ser Gly Ala Ala Ala Gly Ser Pro Gln Ala Leu Leu
183 225 230 235 240
184 Arg Asp Pro
188 <210> SEQ ID NO: 5
189 <211> LENGTH: 3400
190 <212> TYPE: DNA
191 <213> ORGANISM: homo sapiens
193 <400> SEQUENCE: 5
194 gaactgagga gcttgtggag aaaagctata caccaacaaa tcttgttact tcgaatggaa 60
195 aaagaaaacc agaaacttga agcaagcaga gatgaactcc agtccagaaa agttaaatta 120
196 gactatgaag aagttggtgc atgtcagaaa gaggtcttaa taacttggga taagaagttg 180
197 ttaaactgca gagctaaaat cagatgtgat atggaagata ttcatactct tcttaaagaa 240
198 ggagttccca aaagtcgacg aggagaaatt tggcagtttc tggctttaca gtaccgactc 300
199 agacacagat tgcctaataa acaacagcct cctgacatat cctataagga acttttgaag 360
200 cagctcactg ctcagcagca tgcgattctt gtggatttag gaaggacgtt tcctactcac 420
201 ccttactttt cagtacagct tgggccagga cagctgtcac tgtttaacct cctgaaagcc 480
202 tattcattct ttgctggaca aagaatggga tactgtcagg ggatcagctt tgtggctgga 540
203 gtcttgcttc tgcacatgag tgaagagcaa gcctttgaaa tgctgaaatt cctcatgtat 600
204 gacctcggct tccgcaagca gtacagacct gacatgatgt cgctgcagat tcaaagtgtac 660
205 cagctgtcca ggctccttca tgactatcac agagatctct acaatcacct tgaagaaaat 720
206 gaaatcagcc ccagtcttta tgetgcccc tggttcctca cattgtttgc ctctcagttt 780
207 tcattaggat ttgtagccag agtttttgat attatttttc ttcagggaac tgaagttata 840
208 ttcaaggttg cactcagcct actgagcagc caagagacac ttataatggg aatgtgagag 900
209 ctttgaaaaat attgttgagt ttcttaaaaa cacgctacct gatatgaata cctctgaaat 960
210 ggaaaaaatt attaccaggg tttttgagat ggatatttct aagcagttgc atgcctatga 1020
211 ggtggaatat catgtgctac aggatgagct tcaggaatct tcatattcct gtgaggatag 1080
212 tgaacttttg gagaagctgg agagggccaa tagccaactg aaaagacaaa acatggacct 1140
213 cctagaaaaa ttacaggtag ctcatactaa aatccaggcc ttggaatcaa acctggaaaa 1200
214 tcttttgacg agagagacca aatgaagtc tttaatccgg accctggaac aagaaaaaat 1260

```

RAW SEQUENCE LISTING

DATE: 03/03/2006

PATENT APPLICATION: US/09/762,577B

TIME: 10:45:23

Input Set : A:\2486-109REPLACEMENTSEQLISTCOPY1.TXT

Output Set: N:\CRF4\03032006\I762577B.raw

```

215 ggcttatcaa aagacagtgg agcaactccg gaagctgctg cccgcggatg ctctagtcaa 1320
216 ttgtgacctg ttgctgagag acctaaactg caaccctaac aacaaagcca gataggaaat 1380
217 aagccataat tgaagagcac ggctcagcag aaagtgtctc ttagaatact acagagagga 1440
218 agagcctgca tgcgctggc ccaaggctgg accctgaagc tgatggaacc acctaatact 1500
219 ggtgtctgagc tcctagtccac agcaggtgga cctcgtgctc atcagagcat gccaatctaa 1560
220 gccatttggg catagtagac tggtttttgt tggttgctatg acatataaat atatataata 1620
221 aatgaacata gttcatgctt tcagataaaa tgagtagatg tatatttaga ttaatttttt 1680
222 tagtcagaac ttcatgaaat ccacaccaa ggaaaggtaa actgaaattt cccttggaca 1740
223 tatgtgaaat ctttttgtct ttatagttaa acaaagccag agcatctttg tatattgcaa 1800
224 tatacttgaa aaaaatgaat gtattttttt ctccaaagaa cagcatgttt cactcaatgg 1860
225 tgaaaagggtg gaaacattta tgttaacttt atgtgttctg tcttgatata tactgacatt 1920
226 gtctatatga ggaaaatgat tactggtcat gtcctgtgta ttttttggga aggtagggtc 1980
227 atttctccct gctgtctttg tgccaactag catgttgcac ctactgcatt atgaatctgg 2040
228 tggcttactt ttaaacatac taaaacagat aggacttggc tgaatctacc cccaggtaaa 2100
229 ggagaatgtt gcttattttt tagcaaacta acagccttat tctcaactaa aatatcacac 2160
230 ctgaaaaatt taattttttg gtgccacagt caccaaatga caaggatttg ccactttccc 2220
231 accaaattgt gagtgtttgt aatttaggtc tctctacctt aaattcagta taaggaaacg 2280
232 taattatgat tgattttttc caaagatgac aagctgtgtt gaaatacatt tttcttttga 2340
233 ccaattgaca gaatctaata agctttaata atcttccctt tttatgtgaa aagttttgag 2400
234 aactgtgaaa tgtttaggaa caaactgttg aaatccattg gaagggaaaa aagaaagtgg 2460
235 taccagtgtt accagctcaa ctaaacctg caattgtgca tttcaacttt tcaactctc 2520
236 agcatacaaa tagctcatta gaagacattc acgcatgggtg ggtataggca aggaaagtaa 2580
237 ttttcaaagt acatttgcag ttctcttttt cagagatgat tctatgatag cgcctctgaa 2640
238 agttgatgca gcattttcgc ctttccaaaa agtattttatc ctcaactgctt tttgcagtac 2700
239 ttgtattttc acagatggat tatctggggt aattttcttc aaaggaggtt tgttatacac 2760
240 agtgaanaatg tattatagag tagaatagta aagctctagg ggtttcagaa agctttgatg 2820
241 aacagatgac aaacatctga aacccctcc gcactgttac ccagtgtgta tataatgact 2880
242 tgttatagct cagtgtgccc ttgaatccat acagtttctt aaaagacaat aaaatcttat 2940
243 taataaagtt aatgtaactt ctaagttcta gaaaatgctg attctgtctg cccattcaa 3000
244 ttgggggcta ctaattgatt tgttgcttgg atttctgag aatttctcta tttgtaggag 3060
245 gggttttttc tttttacggt ctggtgatga caattacttt atgggtgtga tgcaccgatg 3120
246 gtagccaagg aatctgttgg ggaagttcgg aaagaaacct tttctttctt ttattcagtt 3180
247 taaagtaaac tttatcttgg atgtttagaa tcaacattaa gagttatatt atgggtgttca 3240
248 gagattaagc tgacttggat acaatatatt cttttgaaaa tgaattttct ttttcatttg 3300
249 tgatttttaa aaaatgttgc accagttatg cttcatgcat cgttacatct tcatcagggt 3360
250 aatgtaatgt ctagtctctt tgcaataaat atattgctgc 3400

```

252 <210> SEQ ID NO: 6

253 <211> LENGTH: 366

254 <212> TYPE: PRT

255 <213> ORGANISM: homo sapiens

257 <400> SEQUENCE: 6

```

258 Met Thr Val Arg Asn Ile Ala Ser Ile Cys Asn Met Gly Thr Asn Ala
259 1 5 10 15
260 Ser Ala Leu Glu Lys Asp Ile Gly Pro Glu Gln Phe Pro Ile Asn Glu
261 20 25 30
262 His Tyr Phe Gly Leu Val Asn Phe Gly Asn Thr Cys Tyr Cys Asn Ser
263 35 40 45
264 Val Leu Gln Ala Leu Tyr Phe Cys Arg Pro Phe Arg Glu Asn Val Leu
265 50 55 60

```

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 03/03/2006
PATENT APPLICATION: US/09/762,577B TIME: 10:45:24

Input Set : A:\2486-109REPLACEMENTSEQLISTCOPY1.TXT
Output Set: N:\CRF4\03032006\I762577B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:24; Xaa Pos. 2,4,7,16
Seq#:30; Xaa Pos. 9,14,15,20
Seq#:40; N Pos. 1,80,254,265,275,282,290,304
Seq#:42; N Pos. 15,22,24,76,77,119,153,163
Seq#:43; N Pos. 11,90,138,166,185,190,200
Seq#:49; N Pos. 163,168
Seq#:62; N Pos. 602
Seq#:63; N Pos. 35
Seq#:64; N Pos. 602
Seq#:65; N Pos. 17,25,37,41,53,68,70,144

VERIFICATION SUMMARY

DATE: 03/03/2006

PATENT APPLICATION: US/09/762,577B

TIME: 10:45:24

Input Set : A:\2486-109REPLACEMENTSEQLISTCOPY1.TXT

Output Set: N:\CRF4\03032006\I762577B.raw

L:1171 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:24
L:1172 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24 after pos.:0
L:1254 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:30
L:1255 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:0
M:341 Repeated in SeqNo=30
L:1562 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:0
M:341 Repeated in SeqNo=40
L:1590 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42 after pos.:0
M:341 Repeated in SeqNo=42
L:1605 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:43 after pos.:0
M:341 Repeated in SeqNo=43
L:2040 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49 after pos.:120
L:2347 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:62 after pos.:600
L:2360 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:63 after pos.:0
L:2389 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:64 after pos.:600
L:2402 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:65 after pos.:0
M:341 Repeated in SeqNo=65